

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	83	(nie-xiao\$).in.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/02/18 23:09
L2	60	(nie-xiaoning\$).in.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/02/18 23:09
S1	0	((multi?thread\$3) near4 (instruction adj1 buffers)) with (vliw or (very adj1 long adj1 instruction adj1 word\$1) or (very adj1 long adj1 instruction) or (instruction adj1 (bundle\$1 or group\$1 or packet\$1)))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/22 08:12
S2	0	((multi?thread\$3) near4 (instruction adj1 buffers)) same (vliw or (very adj1 long adj1 instruction adj1 word\$1) or (very adj1 long adj1 instruction) or (instruction adj1 (bundle\$1 or group\$1 or packet\$1)))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:25
S3	0	((multi?thread\$3) near4 (instruction adj1 buffers)) and (vliw or (very adj1 long adj1 instruction adj1 word\$1) or (very adj1 long adj1 instruction) or (instruction adj1 (bundle\$1 or group\$1 or packet\$1)))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:26
S4	11	((multi?thread\$3 or ((multiple or plurality) near4 process\$3)) near4 (instruction adj1 buffers)) and (vliw or (very adj1 long adj1 instruction adj1 word\$1) or (very adj1 long adj1 instruction) or (instruction adj1 (bundle\$1 or group\$1 or packet\$1)))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:49
S5	9	(instruction adj1 buffers) near4 (vliw or (very adj1 long adj1 instruction adj1 word\$1) or (very adj1 long adj1 instruction) or (instruction adj1 (bundle\$1 or group\$1 or packet\$1)))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:31
S6	15	(instruction adj1 buffers) with (vliw or (very adj1 long adj1 instruction adj1 word\$1) or (very adj1 long adj1 instruction) or (instruction adj1 (bundle\$1 or group\$1 or packet\$1)))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:33

## EAST Search History

S7	20	(instruction adj1 buffers) same (vliw or (very adj1 long adj1 instruction adj1 word\$1) or (very adj1 long adj1 instruction) or (instruction adj1 (bundle\$1 or group\$1 or packet\$1)))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:36
S8	1	("5574939").PN.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:37
S9	1	("4229790").PN.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:37
S10	1	("4320453").PN.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:38
S11	12	((multi?thread\$3 or ((multiple or plurality) near4 process\$3)) with (instruction adj1 buffers)) and (vliw or (very adj1 long adj1 instruction adj1 word\$1) or (very adj1 long adj1 instruction) or (instruction adj1 (bundle\$1 or group\$1 or packet\$1)))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:51
S12	11	((multi?thread\$3 or ((multiple or plurality) near4 process\$3)) with (instruction adj1 buffers)) with (superscalar or parallel)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:52
S13	0	((multi?thread\$3 or ((multiple or plurality) near4 process\$3)) with (instruction adj1 buffers)) with (superscalar or (parallel adj1 process\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:52
S14	12	((multi?thread\$3 or ((multiple or plurality) near4 process\$3)) with (instruction adj1 buffers)) with (superscalar or (parallel adj1 process\$1) or (instruction adj1 units) or processors)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:53
S15	0	((multi?thread\$3 or ((multiple or plurality) near4 process\$3)) with (instruction adj1 buffers)) with (superscalar or (parallel adj1 process\$1) or (instruction adj1 units))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:53

## EAST Search History

S16	1	("5913925").PN.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/18 15:59
S17	180	(712/206).CCLS.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/22 08:12
S18	0	vliw near4 (instruction adj1 format) near4 length	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/22 08:13
S19	5	vliw with ((instruction adj1 format) near4 length)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/22 08:14
S20	14	vliw near4 (instruction adj1 length)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/22 08:18
S21	5	vliw same ((instruction adj1 format) near4 length)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/22 08:14
S22	18	vliw with (instruction adj1 length)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/22 08:19
S23	0	vliw with (instruction adj1 length adj1 bit\$1)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/22 08:20
S24	0	vliw with (instruction near4 ( length adj1 bit\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/22 08:20
S25	0	vliw with (instruction with ( length adj1 bit\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/22 08:20
S26	0	vliw same (instruction with ( length adj1 bit\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/22 08:20
S27	0	vliw same (instruction same ( length adj1 bit\$1))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/02/22 08:20

## EAST Search History

S28	187	(712/206).CCLS.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/07/07 14:07
S29	8	(multi?thread\$3) near4 (instruction\$1 adj1 (buffer\$1 or cach\$3))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/07/07 14:08
S30	41	parady.in.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/07/07 14:10
S31	194	(712/206).CCLS.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/12/19 12:14
S32	3806	(select\$3 or multiplex\$3 or choos\$3) near4 (buffers near4 (output\$1 or data))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/12/19 12:15
S33	3790	(select\$3 or multiplex\$3) near4 (buffers near4 (output\$1 or data))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/12/19 12:15
S34	6	(select\$3 or multiplex\$3) near4 ((multiple adj1 buffers) near4 (output\$1 or data))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/12/19 12:30
S35	15	(multiple adj1 buffers) with ((select\$3 or multiplex\$3) near4 (output\$1 or data))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/12/19 12:39
S36	1	(buffers) near4 ((select\$3 or multiplex\$3) near4 (output\$1 or data)) near4 (processing adj1 units)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/12/19 12:39
S37	0	(buffers) near4 ((select\$3 or multiplex\$3) near4 (output\$1 or data)) near4 (multiple near4 instructions)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/12/19 12:39
S38	3	(buffers) near4 ((select\$3 or multiplex\$3) near4 (output\$1 or data)) near4 (instructions)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/12/19 12:42
S39	0	(parallel near4 instruction\$1 near4 fetch\$3) near4 (multiplex\$3 or select\$3) near4 buffers	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/12/19 12:44

## EAST Search History

S40	0	(parallel near4 instruction\$1 near4 fetch\$3) with ((multiplex\$3 or select\$3) near4 buffers)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/12/19 12:44
S41	22	(parallel near4 instruction\$1 near4 fetch\$3) same ((multiplex\$3 or select\$3) near4 buffers)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/12/19 12:46
S42	27	(parallel with fetch\$3) same ((multiplex\$3 or select\$3) with buffers)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/12/19 12:46
S43	194	(712/206).CCLS.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/12/19 13:28
S44	1	"6324639".pn.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2005/12/19 13:46
S45	200	(712/206).CCLS.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2006/05/11 10:30
S46	211	(712/206).CCLS.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/01/08 11:52
S47	211	(712/206).CCLS.	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/02/06 09:06
S48	0	select\$3 with (buffer\$3 near4 parallel near4 execut\$3)	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/02/06 11:10
S49	0	((thread\$3 near4 buffer\$1) with (instruction\$1 near4 issu\$5)) same ((parallel\$5 or simulatenous\$2 or superscal\$5) near4 ((function\$5 or execut\$5 process\$4) near4 (unit\$1 or logic\$1)))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/02/06 11:13
S50	0	((thread\$3 near4 buffer\$1) with (instruction\$1 near4 issu\$5)) same ((parallel\$5 or simulatenous\$2 or superscal\$5) with ((function\$5 or execut\$5 process\$4) near4 (unit\$1 or logic\$1)))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/02/06 11:14

## EAST Search History

S51	50	((thread\$3 near4 buffer\$1) with (instruction\$1 near4 issu\$5))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/02/06 11:19
S52	69	(thread\$3 near4 issu\$3) with ((parallel\$3 or simultaneous\$3) near4 (execut\$3 or process\$3))	US-PGPUB; USPAT; EPO; JPO; IBM_TDB	OR	OFF	2007/02/06 11:25


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### Exploiting choice: instruction fetch and issue on an implementable simultaneous multi processor

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 Volume 24 , Issue 2 (May 1996) [table of contents](#)

Pages: 191 - 202

Year of Publication: 1996

ISBN:0-89791-786-3

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Publisher ACM Press New York, NY, USA

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#### ↑ ABSTRACT

Simultaneous multithreading is a technique that permits multiple independent threads to issue multiple instructions each cycle. In previous work we demonstrated the performance potential of simultaneous multithreading, based on a somewhat idealized model. In this paper we show that the throughput gains from simultaneous multithreading can be achieved *without* extensive changes to a conventional wide-issue superscalar, either in hardware structures or sizes. We present an architecture for simultaneous multithreading that achieves three goals: (1) it minimizes the architectural impact on the conventional superscalar design, (2) it has minimal performance impact on a single thread executing alone, and (3) it achieves significant throughput gains when running multiple threads. Our simultaneous multithreading architecture achieves a throughput of 5.4 instructions per cycle, a 2.5-fold improvement over an unmodified superscalar with similar hardware resources. This speedup is enhanced by an advantage of multithreading previously unexploited in other architectures: the ability to favor for fetch and issue those threads most efficiently using the processor each cycle, thereby providing the "best" instructions to the processor.

#### ↑ REFERENCES

Note: OCR errors may be found in this Reference List extracted from the full text article.